IN THE CLAIMS:

Please amend claims 1, 4, 6, 9, 10, 12, 13, 18, 19, 31, and 35-40 as follows.

1. (Currently Amended) An occupant determination apparatus comprising:

a first sensor section having a plurality of seat section electrodes arranged on a seating section of a seat having the seating section on which an occupant sits and a backrest section; and

a first determination section which detects each capacitance formed between the seat section electrodes by using a predetermined first signal for capacitance measurement, in order to determine [[the]] a size of the occupant,

wherein the first sensor section has a reference electrode array where a plurality of reference candidate electrodes, included in the plurality of the seat section electrodes, are arranged by a predetermined rule,

the first determination section comprises: an electric field generating device which outputs the first signal; a capacitance measuring device which detects each capacitance between the seat section electrodes based on a current flowing through each of the seat section electrodes corresponding to the first signal; a switching device which sequentially switches a connection of the capacitance measuring device to the plurality of the seat section electrodes based on a switch control signal; and a controlling device which outputs the switch control signal, and

the controlling device comprises: a selecting device which sets one of the reference candidate electrodes included in the reference electrode array as a reference electrode, based on measurement capacitances of the seat section electrodes determined by detection capacitances of each of the seat section electrodes which are detected by the capacitance measuring device; a first calculating device which determines the size of the occupant based on a distance between the reference electrode and the occupant which is calculated from the measurement capacitance and an area of the reference electrode, and

the measurement capacitances of the seat section electrodes included in the first sensor section; and a switch signal generating device which outputs the switch control signal.

2. (Original) An occupant determination apparatus according to claim 1, wherein the electric field generating device includes a first signal source which outputs the first signal and a second signal source which outputs a second signal different from the first signal, and

the switching device connects an arbitrary first seat section electrode to the capacitance measuring device based on the switch control signal, and connects so as to supply the second signal to all of the seat section electrodes except for the first seat section electrode, and the detection capacitance of each of the seat section electrodes is made the measurement capacitance of each of the seat section electrodes.

3. (Original) An occupant determination apparatus according to claim 1, wherein the electric field generating device includes a first signal source which outputs the first signal and a second signal source which outputs a second signal different from the first signal, and

the switching device further has a function for switching the first signal and the second signal in order to supply either the first signal or the second signal to the capacitance measuring device based on the switch control signal, and controls so that an arbitrary first seat section electrode is connected to the capacitance measuring device and the second signal is supplied to all of the seat section electrodes except for the first seat section electrode in the case where the first signal is to be supplied to the capacitance measuring device, and controls so that the first signal is supplied to an arbitrary first seat section electrode, an arbitrary second seat section electrode which is different from the first seat section electrode, is connected to the capacitance measuring device, and the second signal is supplied to all of the seat section electrodes except for the first seat

section electrode and the second seat section electrode in the case where the second signal is to be supplied to the capacitance measuring device and

the controlling device further includes a capacitance calculating device which calculates a capacitance between each of the seat section electrodes and the occupant based on the detection capacitance, and

the calculated capacitance of each of the seat section electrodes is made the measurement capacitance of the seat section electrode.

4. (Currently Amended) An occupant determination apparatus according to claim 3, wherein the switching device comprises a switch module ~~(hereunder, SWM)~~ block having a plurality of ~~SWMs~~ switching modules which connect respective ends one-to-one to the seat section electrodes included in the first sensor section, and a switching block which switches the first signal and a predetermined second signal which is different from the first signal to supply either the first signal to the capacitance measuring device, or to supply the second signal to the capacitance measuring device, and the ~~SWMs~~ switching modules select for whether or not to supply the first signal or the second signal to the seat section electrode to which the end is connected, and whether or not to connect to the capacitance measuring device, based on the switch control signal.

5. (Previously Presented) An occupant determination apparatus according to claim 1, wherein the selecting device calculates a normalized capacitance per each unit area based on the measurement capacitance of each of the reference candidate electrodes included in the reference electrode array, and the reference candidate electrode for which the normalized capacitance is the maximum is made the reference electrode.

6. (Currently Amended) An occupant determination apparatus comprising:

a ~~second~~ sensor section having a plurality of back section electrodes arranged on a backrest section of a seat having a seating section on which an occupant sits and the backrest section; and

a ~~second~~ determination section which detects each capacitance formed between the back section electrodes by using a predetermined first signal for capacitance measurement, in order to determine [[the]] a size of the occupant,

wherein the ~~second~~ determination section comprises:

an electric field generating device which outputs the first signal;

a capacitance measuring device which detects each capacitance between the back section electrodes based on a current flowing through each of the back section electrodes;

a switching device which sequentially switches a connection of the capacitance measuring device to the plurality of the back section electrodes based on a switch control signal; and

a controlling device which outputs the switch control signal, and

the controlling device comprises:

a reference value storage device which stores a predetermined reference curve which is preset so that a capacitance for each position of the backrest section has an extreme value at a predetermined position;

a ~~second~~ calculating device which determines the size of the occupant based on the reference curve and a capacitance distribution graph which is generated based on measurement capacitance of each of the back section electrodes determined by respective detection capacitances detected by the capacitance measuring device and the position in the backrest section of each of the back section electrodes; and

a switch signal generating device which outputs the switch control signal.

7. (Original) An occupant determination apparatus according to claim 6, wherein the electric field generating device includes a first signal source which outputs the first

signal and a second signal source which outputs a second signal different from the first signal, and

the switching device connects an arbitrary first back section electrode to the capacitance measuring device based on the switch control signal, and connects so as to supply the second signal to all of the back section electrodes except for the first back section electrode, and the detection capacitance of each of the back section electrodes is made the measurement capacitance of each of the back section electrodes.

8. (Original) An occupant determination apparatus according to claim 6, wherein the electric field generating device includes a first signal source which outputs the first signal and a second signal source which outputs a second signal different from the first signal, and

the switching device further has a function for switching the first signal and the second signal in order to supply either the first signal or the second signal to the capacitance measuring device based on the switch control signal, controls so that an arbitrary first back section electrode is connected to the capacitance measuring device and the second signal is supplied to all of the back section electrodes except for the first back section electrode in the case where the first signal is to be supplied to the capacitance measuring device, and controls so that the first signal is supplied to an arbitrary first back section electrode, an arbitrary second back section electrode which is different from the first back section electrode, is connected to the capacitance measuring device, and the second signal is supplied to all of the back section electrodes except for the first back section electrode and the second back section electrode in the case where the second signal is to be supplied to the capacitance measuring device, and

the controlling device further includes a capacitance calculating device which calculates the capacitance between each of the back section electrodes and the occupant based on the detection capacitance, and

the calculated capacitance of each of the back section electrodes is made the measurement capacitance of each of the back section electrodes.

9. (Currently Amended) An occupant determination apparatus according to claim 8, wherein the switching device comprises a [[SWM]] switching module block having a plurality of ~~SWMs~~ switching modules which connect respective ends one-to-one to the back section electrodes included in the ~~second~~ sensor section, and a switching block which switches the first signal and a predetermined second signal which is different from the first signal to supply either the first signal to the capacitance measuring device, or to supply the second signal to the capacitance measuring device, and the ~~SWMs~~ switching modules select for whether or not to supply the first signal or the second signal to the back section electrode to which the end is connected, and whether or not to connect to the capacitance measuring device, based on the switch control signal.

10. (Currently Amended) An occupant determination apparatus according to claim 6, wherein a planar external appearance of the backrest section is approximately quadrilateral and the backrest section is connected to the seating section on a ~~second~~ connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the backrest section are an x-direction and a z-direction and a direction of the ~~second~~ connection side is the x-direction, at least one of the back section electrodes is arranged on a straight line parallel to the x-direction in the ~~second~~ sensor section, and a plurality of arrays of the back section electrodes are provided mutually separate in the z-direction.

11. (Original) An occupant determination apparatus according to claim 10, wherein the reference curve is set so that the capacitance for each position in the Z-direction has an extreme value at a predetermined position h0.

12. (Currently Amended) An occupant determination apparatus according to claim 11, wherein if the reference curve is denoted by Cs(z) and the capacitance distribution graph is denoted by Cm(z), the ~~second~~ calculating device changes Δz, and calculates a cross-correlation function between $Cs(z+\Delta z)$ and Cm(z), and the Δz when the cross-correlation function becomes a maximum is assumed to be δh, then $(h0+\delta h)$ is made the size of the occupant.

13. (Currently Amended) An occupant determination apparatus comprising

a first sensor section having a plurality of seat section electrodes arranged on a seating section of a seat having the seating section on which an occupant sits and a backrest section;

a second sensor section having a plurality of back section electrodes arranged on the backrest section; and

a ~~third~~ determination section which detects each capacitance formed between the seat section electrodes and each capacitance formed between the back section electrodes, by using a predetermined first signal for capacitance measurement, in order to determine [[the]] a size of the occupant,

wherein the first sensor section has a reference electrode array where a plurality of reference candidate electrodes, included in the plurality of the seat section electrodes, are arranged by a predetermined rule; and

the ~~third~~ determination section comprises: an electric field generating device which outputs the first signal; a capacitance measuring device which detects each capacitance between the seat section electrodes based on a current flowing through each of the seat section electrodes, and detects each capacitance between the back section electrodes based on a current flowing through each of the back section electrodes; a switching device which sequentially switches a connection of the capacitance measuring device to the plurality of the seat section electrodes and the back section electrodes based

on a switch control signal; and a controlling device which outputs the switch control signal, and

the controlling device comprises:

a selecting device which sets one of the reference candidate electrodes included in the reference electrode array as a reference electrode, based on measurement capacitance of each of the seat section electrodes determined by detection capacitance of each of the seat section electrodes which are detected by the capacitance measuring device;

a first calculating device which determines the size of the occupant based on a distance between the reference electrode and the occupant which is calculated from the measurement capacitance and an area of the reference electrode, and the measurement capacitances of the seat section electrodes included in the first sensor section;

a reference value storage device which stores a reference curve which is preset so that the capacitance for each position of the backrest section has an extreme value at a predetermined position;

a second calculating device which determines the size of the occupant based on the reference curve and a capacitance distribution graph which is generated based on a measurement capacitance of each of the back section electrodes determined by each detection capacitance detected by the capacitance measuring device and the position in the backrest section of each of the back section electrodes;

a third calculating device which makes final determination of the size of the occupant based on the determination result of the first calculating device and the determination result of the second calculating device; and

a switch signal generating device which outputs the switch control signal.

14. (Original) An occupant determination apparatus according to claim 13, wherein the electric field generating device includes a first signal source which outputs the first signal and a second signal source which outputs a second signal different from the first signal, and

the switching device connects only one electrode included in a sensor section to be measured to the capacitance measuring device, based on the switch control signal, and connects so as to supply the second signal to other electrode of the sensor section to be measured, and the detection capacitance of each of the electrodes is made the measurement capacitance of each of the electrodes.

15. (Original) An occupant determination apparatus according to claim 13, wherein the electric field generating device includes a first signal source which outputs the first signal and a second signal source which outputs a second signal different from the first signal, and

the switching device further has a function for switching the first signal and the second signal in order to supply either the first signal or the second signal to the capacitance measuring device based on the switch control signal, controls so that an arbitrary first back section electrode is connected to the capacitance measuring device and the second signal is supplied to all of the back section electrodes except for the first back section electrode in the case where the first signal is to be supplied to the capacitance measuring device, and controls so that the first signal is supplied to an arbitrary first back section electrode, an arbitrary second back section electrode which is different from the first back section electrode is connected to the capacitance measuring device, and the second signal is supplied to all of the back section electrodes except for the first back section electrode and the second back section electrode in the case where the second signal is to be supplied to the capacitance measuring device, and

the controlling device further includes a capacitance calculating device which calculates the capacitance between each of the back section electrodes and the occupant based on a detection capacitance detected by the capacitance measuring device, and

the calculated capacitance of each of the back section electrodes is made the measurement capacitance of the back section electrodes.

16. (Original) An occupant determination apparatus according to claim 13, wherein the electric field generating device includes a first signal source which outputs the first signal and a second signal source which outputs a second signal different from the first signal, and

the switching device further has a function for switching the first signal and the second signal in order to supply either the first signal or the second signal to the capacitance measuring device based on the switch control signal, controls so that an arbitrary first seat section electrode is connected to the capacitance measuring device and the second signal is supplied to all of the seat section electrodes except for the first seat section electrode in the case where the first signal is to be supplied to the capacitance measuring device, and controls so that the first signal is supplied to an arbitrary first seat section electrode, an arbitrary second seat section electrode which is different from the first seat section electrode, is connected to the capacitance measuring device, and the second signal is supplied to all of the seat section electrodes except for the first seat section electrode and the second seat section electrode in the case where the second signal is to be supplied to the capacitance measuring device, and

the controlling device further includes a capacitance calculating device which calculates the capacitance between each of the seat section electrodes and the occupant based on a detection capacitance detected by the capacitance measuring device, and

the calculated capacitance of each of the seat section electrodes is made the measurement capacitance of the seat section electrodes.

17. (Original) An occupant determination apparatus according to claim 13, wherein the electric field generating device includes a first signal source which outputs the first signal and a second signal source which outputs a second signal different from the first signal, and

the switching device further has a function for switching the first signal and the second signal in order to supply either the first signal or the second signal to the

capacitance measuring device based on the switch control signal, controls so that when the signal to be supplied to the capacitance measuring device is the first signal and an arbitrary first seat section electrode is connected to the capacitance measuring device, the second signal is supplied to all of the seat section electrodes except for the first seat section electrode, controls so that when the signal to be supplied to the capacitance measuring device is the first signal and an arbitrary first back section electrode is connected to the capacitance measuring device, the second signal is supplied to all of the back section electrodes except for the first back section electrode, controls so that when the signal to be supplied to the capacitance measuring device is the second signal and the first signal is supplied to an arbitrary first seat section electrode, an arbitrary second seat section electrode which is different from the first seat section electrode is connected to the capacitance measuring device, and the second signal is supplied to all of the seat section electrodes except for the first seat section electrode and the second seat section electrode; controls so that when the signal to be supplied to the capacitance measuring device is the second signal and the first signal is supplied to an arbitrary first back section electrode, an arbitrary second back section electrode which is different from the first back section electrode is connected to the capacitance measuring device, and the second signal is supplied to all of the back section electrodes except for the first back section electrode and the second back section electrode, and

the controlling device further includes a capacitance calculating device which calculates the capacitance between each of the seat section electrodes and the occupant and the each capacitance between each of the back section electrodes and the occupant based on detection capacitances detected by the capacitance measuring device, and

the calculated capacitance of each of the seat section electrodes is made the measurement capacitance of each of the seat section electrodes, and the calculated capacitance of each of the back section electrodes is made the measurement capacitance of each of the back section electrodes.

18. (Currently Amended) An occupant determination apparatus according to claim 15, wherein the switching device comprises: a first switch module ~~(hereunder, SWM)~~ block having a plurality of ~~SWMs~~ switching modules which connect respective ends one-to-one to the seat section electrodes included in the first sensor section; a second [[SWM]] switching module block having a plurality of ~~SWMs~~ switching modules which connect respective ends one-to-one to the back section electrodes included in the second sensor section; and a switching block which switches the first signal and a predetermined the second signal which is different from the first signal to supply either the first signal to the capacitance measuring device, or to supply the second signal to the capacitance measuring device, and the ~~SWMs~~ switching modules select for whether or not to supply the first signal or the second signal to the seat section electrode or to the back section electrode to which the end is connected, and whether or not to connect to the capacitance measuring device, based on the switch control signal.

19. (Currently Amended) An occupant determination apparatus according to claim 13, wherein a planar external appearance of the backrest section is approximately quadrilateral and the backrest section is connected to the seating section on a ~~second~~ connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the backrest section are an x-direction and a Z-direction and a direction of the ~~second~~ connection side is the x-direction, then at least one of the back section electrodes is arranged on a straight line parallel to the x-direction in the second sensor section, and a plurality of arrays of the back section electrodes are provided mutually separate in the Z-direction.

20. (Original) An occupant determination apparatus according to claim 19, wherein the reference curve is set so that the capacitance for each position in the Z-direction has an extreme value at a predetermined position h0.

21. (Original) An occupant determination apparatus according to claim 20, wherein if the reference curve is denoted by Cs(z) and the capacitance distribution graph is denoted by Cm(z), the second calculating device sequentially calculates a cross-correlation value CORR (Δz) defined by the following equation while changing Δz, and the Δz when the cross-correlation value becomes a maximum is assumed to be δh, then (h0+δh) is made the size of the occupant:

$$CORR(\Delta z) = \frac{\sum_{r=1}^{n}((Cm_r - \overline{Cm})(Cs_r(\Delta z) - \overline{Cs}(\Delta z)))}{\sqrt{\sum_{r=1}^{n}(Cm_r - \overline{Cm})^2}\sqrt{\sum_{r=1}^{n}(Cs_r(\Delta z) - \overline{Cs}(\Delta z))^2}}$$

where

$$Cm_r = Cm(Z_r), \quad Cs_r(\Delta z) = Cs(Z_r + \Delta z)$$

$$\overline{Cm} = \frac{\sum_{r=1}^{n} Cm_r}{n}$$

$$\overline{Cs}(\Delta z) = \frac{\sum_{r=1}^{n} Cs_r(\Delta z)}{n}$$

22. (Previously Presented) An occupant determination apparatus according to claim 13, wherein the selecting device calculates a normalized capacitance per each unit area based on the measurement capacitance of each of the reference candidate electrodes included in the reference electrode array, and the reference candidate electrode for which the normalized capacitance is the maximum is made the reference electrode.

23. (Previously Presented) An occupant determination apparatus according to claim 1, wherein a planar external appearance of the seat section is approximately quadrilateral, and the seat section is connected to the backrest section on a first

connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the seat section are an x-direction and a Y-direction and a direction of the first connection side is the x-direction, the first sensor section is provided with a plurality of electrode arrays mutually separate in the Y-direction where the seat section electrodes are arranged on a straight line parallel to the X-direction, and at least one of the electrode arrays is the reference electrode array which is arranged with a plurality of the reference candidate electrodes mutually separate in the X-direction.

24. (Original) An occupant determination apparatus according to claim 23, wherein the first sensor section comprises at least two reference electrode arrays.

25. (Original) An occupant determination apparatus according to claim 24, wherein the electrode array further includes a second electrode array with one of the electrodes arranged on a straight line parallel with the x-direction.

26. (Original) An occupant determination apparatus according to claim 25, wherein the electrode array closest to the backrest section is the second electrode array.

27. (Previously Presented) An occupant determination apparatus according to claim 24, wherein the reference electrode array has at least three reference candidate electrodes.

28. (Previously Presented) An occupant determination apparatus according to claim 24, wherein one of the reference electrode arrays comprises a plurality of the reference candidate electrodes which have the same area as each other.

29. (Previously Presented) An occupant determination apparatus according to claim 2, wherein the first signal is an alternating current signal, and the second signal is a direct current signal.

30. (Previously Presented) An occupant determination apparatus according to claim 1, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

31. (Currently Amended) An occupant determination method for an occupant determination apparatus comprising: a first sensor section having a plurality of seat section electrodes arranged on a seating section of a seat having the seating section on which an occupant sits and a backrest section; and a first determination section which detects each capacitance formed between the seat section electrodes by using a predetermined first signal for capacitance measurement, in order to determine [[the]] a size of the occupant, and wherein the first sensor section has a reference electrode array where a plurality of reference candidate electrodes, included in the plurality of the seat section electrodes, are arranged by a predetermined rule, the method comprising at least:

a first detecting step for detecting each capacitance between the seat section electrodes based on a current flowing through each of the seat section electrodes corresponding to the first signal;

a reference electrode setting step for setting an electrode for which a normalized capacitance per unit area which is calculated from a measurement capacitance determined from the detection capacitance detected in the first detecting step is a maximum, among the reference candidate electrodes included in the reference electrode array, as a reference electrode;

a first size calculating step for calculating a measurement area from an area and the measurement capacitance of the reference electrode, and a measurement capacitance determined from the detection capacitance of each of the seat section electrodes; and

a first determination step for determining the size of the occupant by comparing the measurement area and a predetermined first standard value.

32. (Original) An occupant determination method according to claim 31, wherein when the first sensor section includes n of the seat section electrodes,

in the first detecting step, in a state where a first signal is applied to an arbitrary i th (where i is an integer of $1 \leq i \leq n$) seat section electrode and all other of the seat section electrodes are connected to a predetermined fixed potential, a detection capacitance which is detected based on a current flowing through the i th seat section electrode is made the measurement capacitance of the i th seat section electrode.

33. (Original) An occupant determination method according to claim 31, further comprising: a capacitance calculating step for calculating the capacitance between each of the seat section electrodes and the occupant based on the detection capacitance detected in the first detecting step,

wherein the calculated the capacitance for each of the seat section electrodes is made the measurement capacitance of each of the seat section electrodes.

34. (Original) An occupant determination method according to claim 33, wherein when the first sensor section includes n of the seat section electrodes,

in the first detecting step, in a state where a first signal is applied to an arbitrary j th (where j is an integer of $1 \leq j \leq n$) seat section electrode and all other of the seat section electrodes are connected to a predetermined fixed potential, the capacitance which is detected based on a current flowing through an arbitrary k th (where k is an integer of $1 \leq k \leq n$) seat section electrode is made the detection capacitance Cjk of the j

th seat section electrode, and the detection capacitances for all combinations of j and k are detected, and

in the capacitance calculating step the capacitance Cs (i) between the occupant and an i th (where i is an integer of 1 $\leq$i $\leq$n) seat section electrode is calculated based on the detection capacitances by

$$Cs(i) = Cii + Ciq \times Cip/Cqp$$

(where p and q are respectively integers of 1 $\leq$p $\leq$n and 1 $\leq$q $\leq$n, and (i-p) x (p-q) x (q-i) $\neq$0).

35. (Currently Amended) An occupant determination method for an occupant determination apparatus comprising[[;]]: a ~~second~~ sensor section having a plurality of back section electrodes arranged on a backrest section of a seat having a seating section on which an occupant sits and the backrest section; and a ~~second~~ determination section which detects each capacitance formed between the back section electrodes by using a predetermined first signal for capacitance measurement, in order to determine [[the]] a size of the occupant, and wherein a planar external appearance of the backrest section is approximately quadrilateral, the backrest section is connected to the seating section on a ~~second~~ connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the backrest section are an x-direction and a Z-direction and a direction of the ~~second~~ connection side is the x-direction, at least one of the back section electrodes is arranged on a straight line parallel to the x-direction in the ~~second~~ sensor section, and a plurality of arrays of the back section electrodes are provided mutually separate in the Z-direction, the method comprising at least:

a reference curve setting step for previously preparing a reference curve which is set so that the capacitance for each position in the Z-direction of the backrest section has an extreme value at a predetermined position h0;

a ~~second~~ detecting step for detecting each capacitance between the back section electrodes based on a current flowing through each of the back section electrodes corresponding to the first signal;

a ~~second~~ size calculating step for calculating a Z size, which is the size in the Z-direction, from the reference curve and a capacitance distribution graph which is generated based on measurement capacitances determined by respective detection capacitances detected in the ~~second~~ detecting step and the position in the Z-direction of each of the back section electrodes; and

a ~~second~~ determination step for determining the size of the occupant by comparing the Z size and a predetermined ~~second~~ standard value.

36. (Currently Amended) An occupant determination method according to claim 35, wherein when the ~~second~~ sensor section includes n of the back section electrodes, in the ~~second~~ detecting step, in a state where a first signal is applied to an arbitrary j th (where j is an integer of $1 \leq j \leq n$) back section electrode and all other back section electrodes are connected to a predetermined fixed potential, the detection capacitance which is detected based on a current flowing through the j th back section electrode is made the measurement capacitance of the j th back section electrode.

37. (Currently Amended) An occupant determination method according to claim 35, further comprising a capacitance calculating step for calculating the capacitance between each of the back section electrodes and the occupant based on the detection capacitance detected in the ~~second~~ detecting step,

wherein the calculated capacitance of each of the back section electrodes is made the measurement capacitance of each of the back section electrodes.

38. (Currently Amended) An occupant determination method according to claim 37, wherein when the ~~second~~ sensor section includes n of the back section electrodes, in

the ~~second~~ detecting step, in a state where a first signal is applied to an arbitrary j th (where j is an integer of $1 \leq j \leq n$) back section electrode and all other of the back section electrodes are connected to a predetermined fixed potential, the capacitance which is detected based on a current flowing through an arbitrary k th (where k is an integer of $1 \leq k \leq n$) back section electrode is made detection capacitance Cjk of the j th back section electrode, and the detection capacitances for all combinations of j and k are detected, and

in the capacitance calculating step a capacitance Cb (i) between the occupant and an i th (where i is an integer of $1 \leq i \leq n$) back section electrode is calculated based on the detection capacitances by

$$Cb(i) = Cii + Ciq \times Cip/Cqp$$

(where p and q are respectively integers of $1 \leq p \leq n$ and $1 \leq q \leq n$, and $(i-p) \times (p-q) \times (q-i) \neq 0$).

39. (Currently Amended) An occupant determination method according to claim 35, wherein the ~~second~~ sensor section includes n of the back section electrodes, and the position of the k th (where k is an integer of $1 \leq k \leq n$) of the back section electrodes in the Z-direction is made Zk, and in the ~~second~~ size calculating step; if the reference curve and the capacitance distribution graph are respectively denoted by Cs(z) and Cm(z), sequentially computes a cross-correlation value CORR (Δz) defined by the following equation, while changing Δz, and the Δz when the cross-correlation value becomes a maximum is assumed to be δh, then $(h0+\delta h)$ is made the Z-size:

42. (Original) An occupant determination apparatus according claim 19, wherein the selecting device calculates a normalized capacitance per each unit area based on the measurement capacitance of each of the reference candidate electrodes included in the reference electrode array, and the reference candidate electrode for which the normalized capacitance is the maximum is made the reference electrode.

43. (Original) An occupant determination apparatus according to claim 5, wherein a planar external appearance of the seat section is approximately quadrilateral, the seat section is connected to the backrest section on a first connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the seat section are an x-direction and a Y-direction and a direction of the first connection side is the x-direction, then a plurality of electrode arrays where the seat section electrodes are arranged on a straight line parallel to the x-direction in the first sensor section is provided mutually separate in the Y-direction, and at least one of the electrode arrays is the reference electrode array which is arranged with a plurality of the reference candidate electrodes mutually separate in the x-direction.

44. (Original) An occupant determination apparatus according to claim 18, wherein a planar external appearance of the seat section is approximately quadrilateral, the seat section is connected to the backrest section on a first connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the seat section are an x-direction and a Y-direction and a direction of the first connection side is the x-direction, then a plurality of electrode arrays where the seat section electrodes are arranged on a straight line parallel to the x-direction in the first sensor section is provided mutually separate in the Y-direction, and at least one of the electrode arrays is the reference electrode array which is arranged with a plurality of the reference candidate electrodes mutually separate in the x-direction.

$$CORR(\Delta z) = \frac{\sum_{r=1}^{n}((Cm_r - \overline{Cm})(Cs_r(\Delta z) - \overline{Cs}(\Delta z)))}{\sqrt{\sum_{r=1}^{n}(Cm_r - \overline{Cm})^2}\sqrt{\sum_{r=1}^{n}(Cs_r(\Delta z) - \overline{Cs}(\Delta z))^2}}$$

where

$$Cm_r = Cm(Z_r), \quad Cs_r(\Delta z) = Cs(Z_r + \Delta z)$$

$$\overline{Cm} = \frac{\sum_{r=1}^{n} Cm_r}{n}$$

$$\overline{Cs}(\Delta z) = \frac{\sum_{r=1}^{n} Cs_r(\Delta z)}{n}$$

40. (Currently Amended) An occupant determination apparatus according to claim 18, wherein a planar external appearance of the backrest section is approximately quadrilateral, the backrest section is connected to the seating section on a ~~second~~ connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the backrest section are an x-direction and a Z-direction and a direction of the ~~second~~ connection side is the x-direction, then at least one of the back section electrodes is arranged on a straight line parallel to the x-direction in the second sensor section, and a plurality of arrays of the back section electrodes are provided mutually separate in the Z-direction.

41. (Original) An occupant determination apparatus according claim 18, wherein the selecting device calculates a normalized capacitance per each unit area based on the measurement capacitance of each of the reference candidate electrodes included in the reference electrode array, and the reference candidate electrode for which the normalized capacitance is the maximum is made the reference electrode.

45. (Original) An occupant determination apparatus according to claim 19, wherein a planar external appearance of the seat section is approximately quadrilateral, the seat section is connected to the backrest section on a first connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the seat section are an x-direction and a Y-direction and a direction of the first connection side is the x-direction, then a plurality of electrode arrays where the seat section electrodes are arranged on a straight line parallel to the x-direction in the first sensor section is provided mutually separate in the Y-direction, and at least one of the electrode arrays is the reference electrode array which is arranged with a plurality of the reference candidate electrodes mutually separate in the x-direction.

46. (Original) An occupant determination apparatus according to claim 22, wherein a planar external appearance of the seat section is approximately quadrilateral, the seat section is connected to the backrest section on a first connection side which is one side of the quadrilateral, and assuming that two directions mutually orthogonal in the plane of the seat section are an x-direction and a Y-direction and a direction of the first connection side is the x-direction, then a plurality of electrode arrays where the seat section electrodes are arranged on a straight line parallel to the x-direction in the first sensor section is provided mutually separate in the Y-direction, and at least one of the electrode arrays is the reference array which is arranged with a plurality of the reference candidate electrodes mutually separate in the x-direction.

47. (Original) An occupant determination apparatus according to claim 23, wherein the reference electrode array has at least three of the reference candidate electrodes.

48. (Original) An occupant determination apparatus according to claim 23, wherein one of the reference electrode arrays comprises a plurality of the reference candidate electrodes which have the same area as each other.

49. (Original) An occupant determination apparatus according to claim 27, wherein one of the reference electrode arrays comprises a plurality of the reference candidate electrodes which have the same area as each other.

50. (Original) An occupant determination apparatus according to claim 5, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

51. (Original) An occupant determination apparatus according to claim 10, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

52. (Original) An occupant determination apparatus according to claim 18, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

53. (Original) An occupant determination apparatus according to claim 19, wherein the seat section electrodes and the back section electrodes and the switching

device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

54. (Original) An occupant determination apparatus according to claim 22, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

55. (Original) An occupant determination apparatus according to claim 23, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

56. (Original) An occupant determination apparatus according to claim 27, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

57. (Original) An occupant determination apparatus according to claim 28, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.

58. (Original) An occupant determination apparatus according to claim 29, wherein the seat section electrodes and the back section electrodes and the switching device are respectively connected by shielded wire, and a signal which is the same as the signal applied to a central conductor of the shielded wire, is applied to a shielded section of the shielded wire.